

### **REMARKS/ARGUMENTS**

Claims 1-35 are pending in the Office Action dated June 21, 2007.

The Office Action contains a restriction requirement. Specifically, the Office Action has required an election between Group I (claims 1-9 and 32-35), Group II (claims 10-24) and Group III (claims 25-31). During the telephone conversation with the Examiner on June 4, 2007, a provisional election was made to prosecute the invention of Group III, and it is hereby confirmed that Applicants respectfully elect Group III.

Claims 25, 30 and 31 have been amended within the subject matter of the application as filed.

Claims 26-29 are canceled. Claims 1-24 and 32-35 are canceled without prejudice to renew in a divisional application.

It is respectfully submitted that no new matter has been added.

### **INVENTORSHIP**

Applicants elect Group III after the election requirement by the Examiner.

Applicants hereby confirm that the inventorship of the present application is correct and need not be amended.

### **PRIORITY DATE**

The Office Action states that the effective filing date of the present application is January 16, 2004, which is the filing date of the present application, because the presently pending claims find support in the subject matter added in this continuation-in-part application. For purposes of this examination, Applicants do not traverse the statement regarding priority date in the Office Action.

### **CLAIM REJECTIONS**

#### **Rejections under 35 U.S.C. §102**

The Office Action rejects claims 25-31 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. US 2002/0121088 A1 to Zuppero et al. ("Zuppero '088")

Applicants respectfully traverse rejection. Applicants respectfully submit that Zuppero '088 cannot anticipate claim 25, as amended, because Zuppero '088 lacks one or more features of claim 25. For example, claim 25 has been amended to require that the stabilizing interlayer conductor that is formed on the conductor material such that the interlayer conductor "isolates chemical reactants from the junction". Zuppero '088 does not teach any such structure. In addition, claim 25 has been amended to require that the conducting surface formed on stabilizing interlayer conductor be formed or one or more nanostructures that are in contact with or near a region containing "chemical reaction products". Again, Zuppero '088 discloses no such structure. Finally, claim 25 has been amended to make clear that the tailoring material on which the conductor material is formed is "arranged to prevent junction tearing and to form a uniform diode." Zuppero '088 does not disclose this feature either.

These claimed features all act to minimize any detrimental modifications of the device that result when the device is in contact with chemical reactions operated at a high enough power density needed for electric generation process. If these modifications are not minimized, a harsh and energetic environment on the nano-surface is created, which is undesirable.

Because several limitations of claim 25 are missing from Zuppero '088, Zuppero '088 cannot anticipate. Thus, Applicant respectfully submits that claim 25 is allowable over Zuppero '088. In addition, since claims 30-31 depend from claim 25, applicants respectfully submit that claims 30 and 31 are allowable for the same reasons.

#### **Rejections under 35 U.S.C. §103**

The Office Action rejects claims 25-31 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,740,192 to Hatano et al ("Hatano") in view of Okata et al ("Okata", Japan J. Appl. Phys. Reference) with supporting evidence by Hirsch et al ("Hirsch", J. Electron. Mater. Reference). Applicants respectfully traverse this rejection.

Applicants respectfully submit that claim 25, as amended, is patentable over Hatano, and Okata. Amended claim 25 recites "An electric generator converting **pre-equilibrium chemical reaction product energy into electrical potential**," whereas

Hatano only teaches the conversion from **electrical energy to electricity** or other forms. (emphasis added) Thus, the energy source converted to electricity in Hatano is electrical energy, not pre-equilibrium chemical reaction product energy, as required by claim 25.

Moreover, the Office Action concedes that Okada teaches an **ohmic** contact to a p-type III-V semiconductor. ¶1 on Page 8, Office Action. (emphasis added). It is well known to those having ordinary skill in the art that ohmic contacts have thicknesses that must be greater than the ballistic mean free path of the electrons. In contrast, amended claim 25 requires "An electric generator converting **pre-equilibrium chemical reaction product energy**", which means that all the contacts and layer materials need to allow **ballistic, non-ohmic**, electron transport.

In fact, amended claim 25 specifically requires that "the conductor material, the stabilizing interlayer conductor, the conducting surface, and the tailoring material [be] **ballistic charge carrier conductors**". (emphasis added). As those having ordinary skill in the art recognize, "ballistic transport" is the transport of electrons in a medium where the electrical resistivity due to the scattering, by the atoms, molecules or impurities in the medium itself, is negligible or absent. Therefore, the ballistic charge carrier conductors of claim 25 are necessarily limited in thickness so that ballistic transport of electrons can occur. In contrast, the ohmic contact of Okata is governed by the classical Ohm's law where resistivity is defined as the proportionality of the applied voltage with respect to the current. The layers of ohmic contact of Okata therefore must be an order of magnitude thicker than ballistic charge carriers. Thus, applicants respectfully submit that Okata cannot be combined with Hatano to result in the structure recited in claim 25.

For these reasons, claim 25 and claims 30-31 depending therefrom are not obvious over Hatano in view of Okata. Therefore applicants respectfully submit that claims 25 and 30-31 are patentable under 35 U.S.C. §103(a) over Hatano in view of Okata.

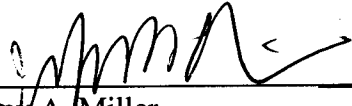
**CONCLUSION**

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (650) 614-7660. If there are any additional charges, please charge Deposit Account No. 15-0665.

Respectfully submitted,  
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By: \_\_\_\_\_

  
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